2. Data Transport (DT) Requirements

1. Overall requirement

1.1. The DT shall support machine-to-machine interoperability with semantic meaning, i.e., the DT shall incorporate some collection of methodologies that promote the scripted exchange of data between computers, with all computers involved in a transaction capable of determining both the syntax and the semantics of the exchanged data without human intervention.

1.2. The DT shall include an access method that is consistent with that which is referred to as "Web services" in the literature.

    1.2.1. "A Web service is a software system identified by a Universal Resource Identifier[4], whose public interfaces and bindings are defined and described using XML[5]."

1.3. Other Web services requirements TBD.

2. Representational requirements

2.1. The DT shall support metadata as described below:

    2.1.1. Syntactic metadata are information about the data types and structures at the computer level, the syntax of the data. For example, variable D represents a floating point array measuring 20 by 40 elements.

    2.1.2. Semantic metadata are information about the contents of the data set.

2.2. DT shall be able to transmit all relevant semantic metadata, that is translational use, descriptive use, and search metadata. They must be available in both human-readable and machine-readable forms.

2.3. DT shall be able to express the structure of the numeric data it will encounter in oceanographic data repositories.

2.4. DT shall be able to transmit the numerical data themselves without corruption or loss of precision.

2.5. The following simple and compound types shall be provided:

    2.5.1. Simple types:

        2.5.1.1. Integers (signed 16, 32, 64-bit; unsigned 8, 16, 32, 64-bit); floating point (32, 64-bit);

        2.5.1.2. Strings

        2.5.1.3. Pointers to types

    2.5.2. Compound

        2.5.2.1. Structures

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[4]Uniform Resource Identifiers (URI): Generic Syntax, IETF RFC 2396, T. Berners-Lee, R. Fielding, L. Masinter, August 1998 (See http://www.ietf.org/rfc/rfc2396.txt)

[5]Web Services Glossary W3C Working Draft 14 November 2002 (See http://www.w3.org/TR/ws-gloss/)